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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/725,314	11/29/2000	Masaharu Amano	001337	8583

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EXAMINER

MAMMEN, NATHAN SCOTT

ART UNIT

PAPER NUMBER

3671

DATE MAILED: 08/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/725,314

Applicant(s)

AMANO ET AL.

Examin r

Nathan S Mammen

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-- The MAILING DATE f this communicati n appears on the cover sheet with the correspondence address.

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2003 .
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____ .

DETAILED ACTION

Election/Restrictions

1. This application contains claims 7-15 drawn to an invention nonelected with traverse in Paper No. 5. A complete reply to the final rejection must include cancelation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Maurer et al. (U.S. Patent 4,360,982), cited in previous office action.

The Maurer '982 patent discloses a bucket tooth (60) attached to a bucket lip (36) via a fastening bolt (65). The bucket tooth has a concave aperture (80) for receiving the fastening bolt. The bucket tooth is made of a boron steel (col. 4, lines 33-48). The combination of the concave aperture and the steel construction absorbs axial force fluctuations, due to the inherent properties of steel. For example, it is notoriously well known that steel, and other metals, deform first elastically and then plastically in response to a force. When the bolt acts upon the bucket tooth, the bucket tooth, particularly at the concave aperture, also deforms elastically. This elastic deformation absorbs the axial force. Deformation in the elastic region also inherently means that

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the bucket tooth generates a resilient return force. Warpage and the resulting direction of concavity only depends on the direction the force is being applied.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maurer et al. (U.S. Patent 4,360,982).

The Maurer '982 patent discloses the claimed invention, as stated in paragraph 5 above, except for the amount of warp. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a warp of between 2 mm/m to 15 mm/m, since the warp is dependent upon the force applied.

6. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maurer et al. (U.S. Patent 4,360,982) in view of Rose et al. (U.S. Patent 4,958,970), both cited in previous office action.

The Maurer '982 patent discloses the claimed invention, as stated in paragraph 5 above, except for the bucket tooth being spot faced on the side facing the bucket lip. The Rose '970 patent teaches that it was known in the art at the time the invention was made to spot face (Fig. 8 – countersink) an element on the side facing the surface to which it is to be bolted. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide

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the bucket tooth of the Maurer '982 patent with the spot facing of the Rose '970 patent, in order to provide an improved connection and force absorption means.

Regarding claim 6: The range of the ratio of depth of the spot facing to the diameter would have been an obvious matter of design choice since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Allowable Subject Matter

7. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

8. Applicant's arguments filed 5/23/03 have been fully considered but they are not persuasive.

Applicant has corrected the wording of claims 1-6, thus the rejection under 35 U.S.C. 112, stated in the last office action, is overcome.

However, the instantly rejected claims now state that the axial force fluctuation absorbing means is "by action of a resilient return force found in the material from which the bucket tooth is fabricated." As stated above and in the previous office actions, the bucket tooth is made of steel. Steel has inherent elastic properties. When the nut and bolt interact to clamp the bucket tooth to the bucket lip, the force of the bolt (acting normal to the bucket tooth) is resisted by the properties of the steel (acting in the opposite direction). This is a fundamental law of physics:

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every action produces an equal and opposite reaction. Those resilient properties of the steel bucket tooth are an axial force fluctuation absorbing means, and the steel's resilience acts to cause a gap between the bucket tooth and the bucket lip. Note that the claim states that the axial force fluctuation absorbing means acts to cause a gap; the claims do not state that a gap is actually present, nor is there support in the specification to state that a gap occurs. See, e.g., specification page 15, which states that "[b]y the fastening force [of the bolt], the bucket tooth 6 enters a straight state." Thus, the "causing" of a gap is considered to be the resilient return force exerted by the bucket tooth against the clamping force of the bolt.

The spot facing, as taught by the Rose '970 patent, would, in combination with the bucket tooth as disclosed by the Maurer '983 patent, provide elastic properties that function as an axial force fluctuation absorbing means. As suggested above, the claims are being read in a manner in conformance with the original disclosure, thus no actual gap between the bucket tooth and lip is present, only a force acting to *cause* a gap.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37


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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan Mammen whose telephone number is (703) 306-5959. The examiner can normally be reached Monday through Thursday from 6:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas B. Will, can be reached at (703) 308-3870. The fax number for this Group is (703) 305-3579.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-1113.


Thomas B. Will
Supervisory Patent Examiner
Group 3600

NSM
8/8/03

Nathan S. Mammen